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Treasure of the Past VII

This paper from the *Journal of Research of the National Bureau of Standards*, Vol. 67A, 1963, pp. 363–377, is reprinted to commemorate the NIST Centennial on March 3, 2001. Ten papers have been selected from the *Journal* and its predecessors for this purpose, one from each decade of NIST's existence. They appear in 10 of the 12 issues of the *Journal* published in 2000 and 2001, starting with the March–April 2000 issue (Vol. 105, No. 2). The papers have been selected to reflect the breadth and excellence of the work carried out at NIST during its first century. For further information, see the Message From the Chief Editor on p. iii of the May–June 2000 issue (Vol. 105, No. 3).